OUR COAL FIELDS

Surpass in Value all the Gold and

MORE THAN GREAT BRITAIN'S.

A Wonderful Showing by a Conserva tiye Geologist who Ranks as

many people still living in the world who believe that the aphorism in question applies to individuals only nd that communities, municipalities States and nations may violate it with No greater mistake can be made. Not more surely will the individmade. Not more surely will the individ-ual who misrepresents and over-states his financial resources in order to obtain a temporary and fictitious credit, finally come to grief, and never recover the con-fidence of those whom he betrayed, than will the community or State which per-mits its natural wealth to be be misrep-resented and exagerated, suffer ever mits its natural wealth to be be misrepresented and exaggerated, suffer ever after from the evil reports of those who have been misled. One great reason for the slow development of our State is to be found in this tendency of some of our people, to overrate the mineral wealth of the State, the natural result being that all the statements are discredited. A few glistening scales of nica (to be found in every sandstone) are heralded forth to the country as the outpourings of a tin, or silver lode of fabulous value, while lead, gold and copper "finds" in large quantity, are reported so frequently that we cannot blame the general public for being incredulous as to the actual value of our resources. It is true that much of this sentation is not intended to de ople, for the vast majority who scatter these reports know nothing of the mode of occurrence of the minerals in question, and hence they can perceive no improbability in any statements that may be made with reference to the discovery of them. This fact, however, does not lessen the evil done. In this age of specialization, no one is entitled to hold and propagate opinions on any subject, unless he is thoroughly familiar with it from long and close study; but the people who send abroad these exaggerated reports concerning the richness of certain localities in West Virginia in nearly every form of mineral wealth, seem to be entirely unconscious of the nbove truism.

In view of these facts, it is necessary for the benefit of our own people as well as for the information of others, that a list of things we do not have should be given. Those who would seek gold, silver, copper, tin, zinc, lead, or any other point 20 to 30 miles distant from the respective borders of the field, the same hard sandstones and pebbended by the same hard sandstones and pebbended by the same there are the mortalized in Jackson county, Ohio, along the northwestern border of the group, and laso opposite this along the southeastern border of the group, and laso opposite this along the southeastern border of the group, and laso opposite this along the southeastern border of the group, and also opposite this along the southeastern border of the group, and also opposite this along the southeastern border of the group, and also opposite this along the southeastern border of the group, and also opposite this along the southeastern border of the group, and also opposite this along the southeastern border of the group, and also opposite this along the southeastern border of the group, and also opposite this along the southeastern border of the group, and also opposite this along the southeastern border of the group, and also opposite this along the southeastern border of the group, and also opposite this along thes outhy work along the northwestern border of the group, and also op these reports know nothing of de of occurence of the minerals

about all those matters to when we can about all those matters to when we can make no honest pretensions. Bountiful that these congiomerate captional parity.

Another strange thing about the Another strange thing about the captional parity.

the state of the interpretation of the control of t

bituminous coal, viz: Jefferson, Berkeley, Morgan, Hampshire, Hardy, Pendleton and Monroe.
The column of rock which holds the

The column of rock which holds the coal beds in the Appalachian field has been subdivided into several groups, and as these come to the surface in different portions of the State, and contain roals of distinctly different qualities. I shall briefly describe each, and trace the lines of their outcrops across the State. At the base of the series, and therefore the lowest group of the true coal measure rocks, we have what is usually thermed the conglomerate measures, be-

measure rocks, we have what is usually termed the conglomerate measures, because the great sandstones which are there interstratified with the beds of coal and slate often contain pebbles of quartz and other hard rocks in great abundance. The group hasalso received several other names, among which may be mentioned No. 12 conglomerate, Pottsille conglomerate, seral conglomerate and the millstone grit of the English geologists. The group of coal beds wellsburg by the drill she believe that the aphorism in the beds as a whole have their grandest detect thick same series we feet. These some as runded the conglomerate measures, because the great sandstones which the beds of coal and slate often contain pebbles of watery locality records of the wellsburg by the drill she bed undepth of on the pebbles of the coal and slate often contain pebbles of the coal and slate often contain pebbles of quartz and other hard rocks in great abundance. The group hasalso received severy locality records of the English bed undepth of the millstone grit of the English bed un

The sandstones of this series are noted The sandstones of this series are not for their hardness and consequent power to resist the action of the elements. Being composed almost entirely of quartz to resist the action of the elements. Being composed almost entirely of quartz pebbles and grain, they form great sheets of protecting rock which is almost indestructable by atmospheric influence, and thus it happens that this group of beds is the principal factor of forming the wild picturesque scenery of our Mountain State. The wild gorges and canyons of the Cheat, the Gauley, the New, the Guyandotte, the Big Sandy and other West Virginia rivers are all formed by this series of rocks. All of the ridges and peaks of the Alleghanics are capped and protected by this friendly mantle. Wherever these rocks come to the surface, wildness, barren solls, and preciproce. below the drainage levels the mountains disappear, and in their stead we find rounded hills, with gentler slopes and

FORMATION OF THE COAL.

Another peculiarity of this series is not although it forms a continuous sheet f beds under all of the 60,000 square allos of the Appalachian coal field, yet

probably due to the fact that just previous to the spread of the great peat swamps of this early epoch, the floor of the entire Appalachian coal field was sheeted with a deposit of clean sand and gravel, thus effectually covering up the muddy sediments of a previous epoch, and causing the streams which drained into the peat or coal marshes of the time to be clear and free from impurities, like our own mountain brooks of the present; but however this may be, the fact remains that these conglomerate coals are of exceptional purity.

bour, Randolph (where the U. Freeport is the celebrated "22-foot seam), Upshur, Braxton, Webster, Nicholas, Clay, Kanawha, Fayette, Raleigh, Wyoming, Boone, Logan, Lincoln and Wayne.

These are the counties along the eastern of this series come up to the surface, while on the opposite side of the field, the only locality where they come up to daylight is in Hancock county, and for a short distance along the Volcano uplift in Wood and Wirt. The series, however, underlies all the other counties of the State, which lie west from the belt first mentioned, and underlies of the State, which lie west from the belt first mentioned, and underlies of the State, which have been made in nearly every part of the State. Seems to have valuable coal beds in it at the drill shows that the same valuable the drill shows that the same valuable bed underlies Wheeling at a depth of only 500 feet, while at Mellsburg by a shaft 200 feet deep, and the drill shows that the same valuable coal beds in the same series was passed at a depth of only 500 feet, while at the drill shows that the same valuable coal beds in the same series was passed at a depth of only 500 feet, while at England ruises mearly all her immense or the country has only just began, and that the same validates output of coal from depths of 1,000 feet its output of coal from depths of 1,000 feet its output of coal from depths of 1,000 feet its output of coal from depths of 1,000 feet its output of coal state within a stone's thought of the coal beds in question and the drill shows that the development of this same series was passed at a depth of 1,100 feet its on entirely valueless, but such should remember that the development of this same series was passed at a depth of 1,100 feet its on entirely valueless, but such should remember that the development of this same series was passed at a depth of 1,100 feet its on entirely and the coal beds in remember that the development of this country has only just began, and that England raises nearly all her immense output of coal from depths of 1,000 to 3,000 feet. These facts are mentioned simply to show the vastness of our resources in coal, and the permanency of supply of this "main-spring of civilization" and hence that the railroads, cities and manufactories which may be built within our borders, can depend on an abundant supply of fuel for many seenturies, even from the beds of coal which can be operated from the surface; but when these shall have been exhausted, we shall still have an infinite wealth of these "black diamonds" which can

which can be operated from the surface; but when these shall still have been exhausted, we shall still have an infinite wealth of these "black diamonds" which can be easily obtained by going down a few hundred feet below the surface. When that time comes West Virginia will possess a monopoly of coal in the Appalachian field, for it will be practically exhausted from all the States around us before that from our early accessible beds is used up. These deeply buried beds are found at a depth of 1,500 feet below the valleys in some portions of the State. In passing from the nothern part of the State southwestward to the region of the Great Kanawha, the lower coal measures expand wonderfully in thickness, and instead of a rock series of 250 to 300 feet as in Preston and Monongalia, we get 1,000 feet of rock between the uppermost coal bed of the group, and the top of the conglomerate series below. Accompanying this expansion of the measures there is a great change in the character of the coal in the different beds. Instead of soft coking coal, we find channel, and "block," and "splint" coals, which being quite Expansion of the measures there is a great change in the character of the coal in the different beds. Instead of soft coking coal, we find channel, and "block," and "splint" coals, which being quite Expansion of the measures there is a great change in the character of the coal in the different beds. Instead of soft coking coal, we find channel, and "block," and "splint" coals, which being quite Expansion of the measures there is a great change in the character of the coal in the different beds. Instead of soft coking coal, we find channel, and "block," and "splint" coals, which being quite Expansion of the measures there is a great change in the character of the coal in the different beds. Instead of soft coking coal, we find channel, and "block," and "splint" coals, which being quite Expansion of the measures there is a great change in the character of the coal in the different beds. Instead of soft coking co gradually approaches the river level and

Great Deposits Awaiting Econo-

mical Development.

APPLY THE BASIC PROCESS

Place at the Head of the Steel Industry-Obstacles Not Too Great to Be Removed.

BY COLONEL F. NEMEGYEL,

TE find in the statistics relathe shape of ingots, slabs and wire rods enced in 1882. From that time it has gradually increased, until it has reached to nearly 500,000 tons in 1887. If we study the progress made in the manufacture of steel in Europe, we find a constant increase in the production of Basic steel and a gradual decrease in the output of steel made by the Bessemer pro-

process?

In examining the chemical compositions of the pig-metal used for this process in Europe we find that they vary between the following limits:

OUR WEALTH OF ORE FOR BASIC STEEL. If we examine the chemical composi-ion of our iron ore beds we find that those which would produce pig metal suitable for the Basic process are spread nearly over the whole country, capable of producing a, so to say, limitless supply. On the contrary, those useful for the production of Bessemer pig, are limited to a few localities and the supply required by our steel manufacturers is by no means sufficient. Africa, Spain and the island of Cuba have to furnish the deficit

coking coal, we find channel, and "block," and "splint" coals, which being quite hard, and erumbling with difficulty, make splendid shipping coals, and the perfection of domestic fuel. The lowest bed, however, the Clarion, or Eagle seam makes a splendid coke, and the Lower Kittanning or Campbell's creek seam, can also be coked successfully in some regions. Hence the territory along the Elk and its tributaries, as well as the Guyandotte, Twelve Pole and the Big Sandy, abounds in splendid coal beds of this lower coal measure series.

The Barren Measures.

To the next higher group of rocks goolgists have given the name of Barren trip this coal in thickness and poor in quality. Along with much sandstone, thin limestone and other rocks, this group of beds contains a great deal of soft red shale, and thence it makes a broad belt of red soil almost exactly in the central line of the Riste from Munerallia dear through the State from Munerallia dear throngs to the rocks soon brings the coal to the blow Letart Falls the rise of the rocks soon brings the coal to the blow Letart Falls the rise of the rocks soon brings the coal to the surface at Hartford City and to the surface at Hartford City and the surface at H The ores most suitable for the Basic

How could they tolerate the establishment of new steel plants at the furnaces producing Basic metal? and where, in-stead of remelting the pig in cupolas, the metal is directly run from the furnace THE BASIC PROCESS

set Virginia will Take Her
at the Head of the Steel
stry-Obstacles Not Too
eat to Be Removed.

Y COLONEL F. NEMEGYEI.

Headle Furnace, Presson County.

Te find in the statistics relating to the importation of steel from Europe that the importation of Steel from Europe that the importation of Basic steel in e of ingots, slabs and wire rods ced in 1882. From that time it has edd in 1882. From that time it has feel in Europe, we find a congress made in the manustif steel in Europe, we find a congress the production of Basic at a gradual decrease in the out
stead of remelting the pig in cupolas, the metal is directly run from the furnace into the converter. To compete with such plants they would have to abandon their present location. Is it possible that they should be willing to see furnaces start up erecting so-called baby onverting plants compete with such small and inexpensive establishments? They want to appear public minded and offer the use of their patent on a royalty of \$1 per ton, but let us see under what conditions: First a deposit of \$50,000 to be deducted from the royalty on steel as produced; next, they do not gurantee the purchaser of said privilege against injunctions and law suits or indemnity by the other patentees. Such considerate and public minded oncessions speck for themselves and need no comment.

WEST VIRGINIA COULD HEAD THE STEEL

WEST VIRGINIA COULD HEAD THE STEE Is this useful invention to remain for

remain undeveloped and the progress of the iron industry of the largest sections of the country retarded and d-layed, merely at the pleasure of the Bessemer corporations? Is there no remedy against such a condition of affairs?

Let the members of Congress from our States and all others equally interested with us insist that Congress should name a Committee to examine these patents; first ascertain, if they really represent new inventions, or if they are not compilations of old inventions, whose patents have long expired, as my investigation leads me to believe. Anyhow they can ascertain which is the patent that can be used without subjecting the purchaser of local right to injunctions and lawsuits by the other claimants. Such action by Congress will not be for the benefit of a few individuals only, but will benefit large sections of the country and the public in general, by reducing the price of steel to very low figures.

I principally address myself to the members of Congress and Senators of our State, as it would place us at the head of the steel producing States of the Union, and would give a great impetus to the development of the vast mineral resources of West Virginia.

to the development of the vast minera resources of West Virginia.

WEST VIRGINIA CENTRAL an Undeveloped Section of the State Being

Opened Up.

The probabilities of the West Virginia Central and Pittsburgh railway are great Inducements of every character abound Farming and grazing lands, deep vein of coal, rich deposits of iron and magnifi cent forests of timber are patiently wait cent forests of timber are patiently waiting development. Thousands of acres in Grant and Tucker counties have been made accessible by this road which is still reaching out and into new and broader fields. Fifty of the eighty-eight miles of road now in operation tap a country heretofore inaccessible. From thirty to forty miles of road will be built this season, the work now having been begun. Six miles of this will be a branch running from Abram's creek to Elk Garden, tapping the big vein of coal in a new place, and running through a heavy

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